

## Claims

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1. A method for performing resource reservations or allocations in a network operated by a given signaling message protocol, the method comprising:

generating a sender signal according to the given protocol  
10 including sender traffic characteristics information of a sender;

transmitting the sender signal via at least one network;  
including network traffic characteristics information into  
the sender signal while being transmitted to obtain an extended  
15 sender signal, the network traffic characteristics information  
being indicative of traffic characteristics of the network; and  
reserving or allocating resources of the network in  
dependence of the network traffic characteristics information.

20 2. The method according to claim 1, further comprising:

transmitting the extended sender signal via at least one  
router of the at least one network; and  
including or updating the network traffic characteristics  
information by including or updating information being  
25 indicative of traffic characteristics of the at least one  
router.

3. The method according to claim 1, further comprising:

receiving the extended sender signal by a receiver;  
30 generating a receiver signal according to the given  
protocol including receiver traffic characteristics information  
being indicative of traffic characteristics of the receiver;  
including the network traffic characteristics information  
into the receiver signal to obtain an extended receiver signal;  
35 and

reserving or allocating resources of the network in  
dependence of the network traffic characteristics information  
and the receiver traffic characteristics information.

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4. The method according to claim 3, further comprising:  
transmitting at least one of the extended sender signal and  
the extended receiver signal via at least one router of the at  
least one network; and

5 including or updating the network traffic characteristics  
information by including or updating information being  
indicative of traffic characteristics of the at least one  
router.

10 5. The method according to claim 3, further comprising:  
transmitting the extended receiver signal to the sender via  
the at least one network;

15 updating the extended receiver signal by including actual  
network traffic characteristics information while transmitting  
the receiver signal; and

reserving or allocating resources of the at least one  
network in dependence of the updated extended receiver signal.

6. The method according to claim 5, further comprising:

20 transmitting at least one of the extended sender signal,  
the extended receiver signal and the updated extended receiver  
signal via at least one router of the at least one network; and

25 including or updating the network traffic characteristics  
information by including or updating information being  
indicative of traffic characteristics of the at least one  
router.

7. The method according to claim 1, wherein:

30 the sender reserves or allocates network resources in  
dependence from a signal received from the at least one network.

8. The method according to claim 1, wherein:

35 the receiver receives or allocates network resources in  
dependence of the received extended sender signal.

9. The method according to claim 2, wherein

the at least one router reserves or allocates its resources  
in dependence of the received signal received from the at least  
one network.

10. The method according to claim 1, further comprising:  
including reservation or allocation information into the  
sender signal according to the given protocol, the reservation  
5 or allocation information being indicative of network resources  
to be pre-reserved or pre-allocated; and  
pre-reserving or pre-allocating network resources in  
dependence of the reservation or allocation information.

10 11. The method according to claim 10, further comprising:  
including actual reservation or allocation information into  
the extended sender signal including the reservation or  
allocation information, the actual reservation or allocation  
information being indicative of network resources actually pre-  
15 reserved or pre-allocated.

12. The method according to claim 11, wherein:  
at least one router reserves or allocates available  
resources thereof in dependence of the reservation or allocation  
20 information of the sender and includes the actual reservation or  
allocation information corresponding to the actually pre-  
reserved or pre-allocated router resources.

13. The method according to claim 3, wherein:  
25 the receiver includes a reservation or allocation request  
into the extended receiver signal in dependence of the received  
actual reservation or allocation information, the reservation or  
allocation request being indicative of network resources to be  
used for communication with the sender.

30 14. The method according to claim 13, further comprising:  
reserving or allocating network resources in dependence of  
the reservation or allocation request in the extended receiver  
signal or the updated extended receiver signal.

35 15. The method according to claim 14, wherein:  
at least one router reserves or allocates pre-reserved or  
pre-allocated router resources in dependence of the reservation

or allocation request in the signal transmitted from the receiver.

16. The method of claim 14, wherein:

5 pre-reserved or pre-allocated network resources exceeding the reservation or allocation request of the receiver are released.

17. The method according to claim 16, wherein:

10 at least one router releases its pre-reserved or pre-allocated resources in dependence of the reservation or allocation request in the signal transmitted from the receiver.

18. The method according to claim 13, wherein:

15 the receiver includes information into the extended receiver signal, the information being indicative of a maximum or a minimum of pre-reserved or pre-allocated network resources to remain reserved or allocated.

19. The method of claim 18, wherein:

20 pre-reserved or pre-allocated network resources remain reserved or allocated in dependence of the information included into the extended receiver signal being indicative of the maximum or the minimum network resources to remain reserved and  
25 or allocated.

20. The method according to claim 19, wherein:

30 at least one router maintains its pre-reserved or pre-allocated resources in dependence of the receiver information being indicative of the maximum or the minimum of network resources to remain reserved or allocated.

21. The method according to claim 1, wherein:

35 the signals include information being indicative whether a resource reservation or allocation is performed for at least one of a message transmitted in a direction to a receiver and a message transmitted to the sender.

22. The method according to claim 21, wherein:  
the information included into the transmitted signals  
comprise an indicator specifying a minimum of required network  
resources.

23. The method according to claim 22, wherein:  
pre-reserved or pre-allocated network resources exceeding  
network resources specified by the indicator are used for at  
least one network resource request having a higher priority.

24. The method according to claim 1, wherein:  
the given signaling message protocol is the resource  
reservation protocol,

the sender signal is a PATH-message of the resource  
reservation protocol, and

the receiver signal is a RESV-message of the resource  
reservation protocol.

25. The method according to claim 1, wherein:  
the method is utilized in a network serving at least one of  
a single-client or a multi-client application.

26. The method according to claim 25, wherein:  
signals transmitted to the at least one client are  
transmitted by utilizing a multicasting transmission.

27. The method according to claim 25, wherein:  
signals transmitted to the sender are transmitted by a  
utilization of an inverse multicasting transmission.

28. The method according to claim 26, wherein:  
an aggregation of information included into the signals  
transmitted via the network is performed with the respect to the  
at least one network or components thereof.

29. The method according to claim 27, wherein:  
an aggregation of information included into the signals  
transmitted via the network is performed with the respect to the  
at least one network or components thereof.

30. A method for performing at least one of resource reservations and resource allocations in a network operated in accordance with a predefined signaling message protocol, the method comprising:

generating a sender signal in accordance with the predefined signaling message protocol, the sender signal including sender traffic characteristics information of a sender;

transmitting the sender signal over the network;  
including network traffic characteristics information into the sender signal while the sender signal is transmitted to obtain an extended sender signal, the network traffic characteristics information being indicative of traffic characteristics of the network;

receiving the extended sender signal by a receiver;  
generating a receiver signal in accordance with the predefined signaling message protocol, the receiver signal including receiver traffic characteristics information being indicative of traffic characteristics of the receiver;  
including the network traffic characteristic information into the receiver signal to obtain an extended receiver signal;  
and

reserving or allocating resources of the network in dependence of the network traffic characteristics information and the receiver traffic characteristics information.

31. A computer program product for performing, when the computer program product is run on a computer system, the steps of:

generating a sender signal according to a given signaling message protocol including sender traffic characteristics information of a sender;

transmitting the sender signal via at least one network;  
including network traffic characteristics information into the sender signal while being transmitted to obtain an extended sender signal, the network traffic characteristics information being indicative of traffic characteristics of the network; and

reserving or allocating resources of the network in dependence of the network traffic characteristics information.

32. The computer program product of claim 31, stored on a computer readable recording medium.

33. A network system utilizing a given signaling message protocol for network resource reservations and allocations, comprising:

- a) a sender,
- b) a receiver, and
- c) at least one network for connecting the sender and the receiver,

wherein the sender is adapted to be operated by the steps of generating a sender signal according to the given protocol including sender traffic characteristics information of a sender;

transmitting the sender signal via at least one network;

including network traffic characteristics information into the sender signal while being transmitted to obtain an extended sender signal, the network traffic characteristics information being indicative of traffic characteristics of the network; and

reserving or allocating resources of the network in dependence of the network traffic characteristics information.

34. The network system according to claim 33, wherein the receiver is adapted to be operated by the steps of receiving the extended sender signal by the receiver; generating a receiver signal according to the given protocol including receiver traffic characteristics information being indicative of traffic characteristics of the receiver; including the network traffic characteristics information into the receiver signal to obtain an extended receiver signal; and

reserving or allocating resources of the network in dependence of the network traffic characteristics information and the receiver traffic characteristics information.

- 5 35. The network system according to claim 33, further comprising at least one router, the at least one router being adapted to be operated by the steps of:

transmitting the extended sender signal via the at least one router; and

- 10 including or updating the network traffic characteristics information by including or updating information being indicative of traffic characteristics of the at least one router.

- 15 36. The network system according to Claim 33, wherein:  
the given signaling message protocol is the resource reservation protocol.

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